IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Jim E. Petranovich
Serial No.:	09/910,289
Filed:	July 19, 2001
Art Unit:	2631
Examiner:	Tran, Khanh C.
Title:	Multiple Symbol Rate Burst Equalizer Training

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

I, Joseph H. Lee, declare as follows:

1. I am the Chief IP Counsel at Conexant Systems, Inc., which is the owner of the above-referenced patent application, and I have the authority to act on behalf of Conexant Systems, Inc.

2. I declare that, as detailed in the enclosed Innovation Disclosure, the inventor of the above-referenced patent application conceived the invention of the above-referenced application, as defined by its pending claims, in the United States, on or prior to February 28, 2001.

3. To evidence conception of the invention of the above-referenced application in the United States, attached hereto, please find a copy of the Innovation Disclosure submitted by the inventor of the above-referenced application, which describes the invention of the above-described patent application in Conexant Docket No. 01CXT0189C, entitled "Method for Dual Symbol Rate Burst Equalizer Training", which was entered into the Conexant Innovation Disclosure Database, on February 28, 2001. As shown therein, the inventor of the above-referenced application, in part, states: "The fundamental ideas are inserting zero decisions between the 2 Msps symbols to get 4Msps data and using a different main tap for 2 Msps data and 4 Msps data."

4. I declare that, as evidenced in the Innovation Disclosure and also by filing date of the above-referenced patent application in the USPTO, i.e. July 19, 2001, the invention of the above-referenced application was reduced to practice in the United States using due diligence after conception.

5. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine of imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced patent application or any patent issuing thereon.

12-16-05
Date

Joseph H. Lee
Chief IP Counsel
Conexant Systems, Inc.

CONEXANT™

Docket No.: 01CXT0189C
Ranking: No Rank

1. Title of Innovation

Method for Dual Symbol Rate Burst Equalizer Training

2. Division/platform Information

Personal Computing Division

3. Innovator(s)

Name	Innovator Information
Jim E Petranovich	Personal Information : Home Address : 1190 Encinitas Blvd State : CA Phone : 7609443985 Country of Domicile : US Conexant Contact Information : Address : 9868 Scranton Road, State : CA Phone : 760-944-3985 Email : jim.petranovich@conexant.com Mail Code : SA2-220
	City : Encinitas Zip : 92024 Fax : Citizenship : US City : San Diego Zip : 92121-1762 Fax : 858-713-4009 Dept. : 039-987- Supervisor : Mr. Matt Rhodes
Jim E Petranovich	Personal Information : Home Address : 1190 Encinitas Blvd State : CA Phone : 7609443985 Country of Domicile : US Conexant Contact Information : Address : 9868 Scranton Road, State : CA Phone : 760-944-3985 Email : jim.petranovich@conexant.com Mail Code : SA2-220
	City : Encinitas Zip : 92024 Fax : Citizenship : US City : San Diego Zip : 92121-1762 Fax : 858-713-4009 Dept. : 039-987- Supervisor : Mr. Matt Rhodes

4. Problem Solved

HPNA 2.0 is a burst wireline communication system requiring adaptive equalization. In HPNA, the symbol rate is either 2 Msps or 4 Msps but the peramble and header are always 2 Msps. We need to train the equalizer for the payload whether it is 2 Msps or 4 Msps. Since it is a burst system we must complete training without losing any

information.

5. Previous Solutions

This is a new problem, I know of no solutions. Broadcom has a solution, but we don't know what it is.

6. Solution

First we process the preamble and header as if the data rate is 2 Msps. We process the preamble once, then befin equalizing on header information. The first few symbols of the header include information on the payload symbol rate. Once we have read these, we restart processing of the packet.

If the symbol rate is 2 Msps we keep the equalizer coefficients as is, but we re-start the equalizer on the preamble again. We process the preamble (which is known data) 3 more times, then we process the data. The equalizer is a t/4 spaced DFE with 10 forward taps and 10 reverse taps (reverse taps are t-spced)/

If the symbol rate is 4 Msps we reload the equalizer with a new set of coefficients (we chose the main tap differently to reduce ISI caused by precursors). We process the unqiue word 3 times at 4 Msps. We treat the data as an alternation fo the known 2 msps preamble data and ture zero data. We process the ehader the same way. The equalzier is a T/2 DFE with 10 forward taps and 20 reverse taps.

The fundemntal ideas are inserting zero decisions between the 2 Msps symbols to get 4 Msps data and using a different main tap for 2 Msps data and 4 Msps data.

7. Differences/Advantages Over Previous Solutions

No previous solutions.

8. Status of Innovation

Under development If "Other", please specify

9. Product or program in which innovation will be used:

Products Used : PC LAN Home Networking	Technology Used :
If other, please specify :	**If other, please specify :**

Additional Information :	

10. Has anyone disclosed or does anyone plan to disclose your innovation outside the Company?

○ Yes ● No ○ Don't Know

11. Has anyone proposed or does anyone plan to propose a product or program to a customer which includes your innovation?

● Yes ○ No ○ Don't Know

12. Innovator signature(s): (Do not use black ink)

_____ **Date :** _____
(JIM E PETRANOVICH)

_____ **Date :** _____
(JIM E PETRANOVICH)

Qtr Evaluated: 2Q01
Group: Personal Computing Division
Technology:
Sub Technology 1:
Sub Technology 2:
Products:
Innovation Block:

Entered: Jim E Petranovich @ 02/28/2001 11:19:23 AM
Modified: Jim E Petranovich @ 02/28/2001 11:55 AM